HAWKINS, MELBA ANN. School Adjustment and Academic Achievement of Head Start Participants Compared with Eligible Non-participants. (1968) Directed by: Dr. Nancy White. pp. 70.

Project Head Start, established in 1965 by the Federal Government, attempted to meet some of the physical, mental, social, and emotional needs of the culturally deprived preschool child. Head Start provided experiences to develop skills and abilities that help to prepare these children for adjustment to and success in public schools.

The purposes of this study were (1) to compare children's readiness for first-grade instruction before and after their participation in Head Start and (2) at the end of first grade, to compare the school adjustment ratings, academic achievement test scores, and verbal intelligence quotients of these Head Start participants with eligible non-participants.

Data for the study were supplied by the Director of Federal Programs in the Greensboro Public School System. The data for the participants, secured at the beginning and at the end of Head Start participation, were scores on the Metropolitan Readiness Test. Data for comparison of the Head Start participants with the eligible non-participants at the end of first grade included: (1) Greensboro Public School Adjustment Inventory ratings; (2) California Achievement Test scores, Reading Subtest and Arithmetic Subtest; and (3) Peabody Picture Vocabulary Intelligence Quotients.

The subjects were 200 children selected from the entire population of approximately 600, 1966 Greensboro Head Start participants. A table of random numbers was used to determine the subjects. The eligible non-participants were 200, 1966-67 first-grade children who were identified by school principals as

eligible but non-participants in the 1966 Head Start Program.

Statistical analyses were made by the use of *t* tests with the level of significance set at .01. The mean score on the Metropolitan Readiness Test for the 1966 Greensboro Head Start participants was significantly higher at the end than at the beginning of the five-month Head Start experience. At the end of first grade, the 1966 Greensboro Head Start participants rated significantly higher on school adjustment and scored significantly higher on the reading subtest of the achievement test and the verbal intelligence test than did the 1966 eligible non-participants. Although the mean score of the Head Start participants on the arithmetic subtest of the academic achievement test was higher than the mean score of the eligible non-participants, the difference was not significant.

SCHOOL ADJUSTMENT AND ACADEMIC ACHIEVEMENT OF HEAD START PARTICIPANTS COMPARED WITH ELIGIBLE NON-PARTICIPANTS

by

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A Thesis Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Home Economics

Greensboro
July, 1968

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ACKNOWLEDGMENTS

The writer expresses sincere appreciation to:

Mr. Joe Stevens, Director of Federal Programs for the Greensboro Public Schools, for making the data available for the study and for his consultation;

Dr. Nancy White, Director of the Thesis and Chairman of the Committee, for her personal understanding, interest, patience, and guidance;

Dr. Ellen Champoux, Dr. Eugenia Hunter, and Dr. Rebecca Smith, committee members, for their help and interest in the preparation of this thesis;

Dr. Helen Canaday, Director of the Nursery School at the University of North Carolina at Greensboro, for her consideration and understanding during the time of the study;

Dr. Robert Eason and Dr. Jean Spruill for their suggestions and assistance with the statistical analysis;

Dr. Boyd McCandless for his encouragement and suggestions.

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CHAPTER I

INTRODUCTION

During the preschool years, a child develops more rapidly physically, mentally, socially, and emotionally than at any other time in his life. Consequently his environment has a marked influence on all of these aspects of his development; living in poverty often limits a child in optimum growth and development. In recent years, therefore, attention has been placed upon the impact of poverty on the preschool child and special interest has been directed toward his preparation for, adjustment to, and success in public school.

Especially in the late 1950's, there was an accelerated concern for educating the children of the United States (Hodges and Spicker, 1967). Although in the past early childhood educators recognized that one of the answers to the needs of the impoverished child was preschool education, the lack of appropriate finances limited preschool education primarily to the children of the middle and upper classes. Since 1965, Head Start programs have focused nationwide attention on preschool education for the children of the poor (Spodek, 1965).

Project Head Start is a result of an increased interest in the social, emotional, physical, and intellectual development of the culturally deprived preschool child. Head Start was established as one of the Community Action Programs under the Economic Opportunity Act of 1964. The purposes of the

program, sponsored by the Federal Government and local communities, are to identify and to meet some of the needs for the total development of the culturally deprived preschool child. The educational goals of Head Start are to provide the culturally deprived child with experiences to develop skills and abilities that help to prepare him for adjustment to and success in public schools (Office of Economic Opportunity, 1967a).

Studies of Head Start programs are limited and are primarily related to the immediate gains in intelligence quotients and in readiness for entrance to kindergarten or public school. An additional test of the success of the Head Start programs is the performance of the participating child when he enters public school. Studies of school adjustment and academic achievement of Head Start participants and studies to compare their adjustment and achievement with eligible non-participants need to be made. Follow-up studies of Head Start children would be of value to those planning Head Start and other programs for the culturally deprived child, to Head Start teachers, to public school teachers, and to others concerned with child development.

In this study a comparison was made, at the end of the first grade, of school adjustment and academic achievement of children who participated in Head Start for five months with eligible non-participants.

Purposes of the Study

The purposes of the study were:

1. To compare children's readiness for first-grade instruction before

and after their participation in Head Start.

2. To compare school adjustment ratings of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

3. To compare achievement test scores of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

4. To compare the intelligence quotients of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

Limitations of the Study

In undertaking this study, the investigator recognized that there were limitations.

1. The study of the 1966 Greensboro Head Start participants and eligible non-participants was conducted after only one year of subjects' attendance in the Greensboro Public Schools.

2. The children who had Head Start experiences were compared only with children from the same socioeconomic background.

3. Qualifications of all testers and test conditions were unknown for both Head Start and for first-grade programs.

Definitions of Terms Used

For clarity, terms that have specific meanings in this study are defined.

Culturally deprived children--Children with educational, social, and/or physical problems arising from and residing extensively within the culture of the poor.

Readiness--The extent to which children who are chronologically old enough to begin school have developed skills and abilities which have prepared them for first-grade instruction.

School adjustment--A child's social, physical, work, and academic adjustment to school.

Assumptions

Four assumptions were accepted for this study.

1. Urban culturally deprived children are of a homogeneous population.

2. Curriculum and experiences in Head Start centers are comparable since a prescribed program was developed by the Office of Economic Opportunity.

3. Curriculum and experiences in first-grade classes in a specific city school system are comparable since a recommended curriculum is followed.

4. School readiness, adjustment, and achievement can be measured.

Hypotheses

The hypotheses of this study were:

Hypothesis I. Participants at the end of the Head Start program score significantly higher on a readiness test than they did at the beginning of the program.

Hypothesis II. At the end of first grade, Head Start participants rate

significantly higher on a school adjustment inventory than eligible non-participants.

Hypothesis III. At the end of first grade, Head Start participants score significantly higher on an achievement test than eligible non-participants.

Hypothesis IV. At the end of first grade, Head Start participants score significantly higher on a verbal intelligence test than eligible non-participants.

CHAPTER II

REVIEW OF THE LITERATURE

The selected review of literature for this study is divided into three sections. First, general aspects of preschool education are included. Second, characteristics of culturally deprived children are considered under topics of family background, intellectual development, school readiness, school adjustment, and academic achievement. A description of the Head Start program, its accomplishments, and research on the program are included in the third division.

Preschool Education

The establishment of a preschool program for four- and five-year-old children in Germany by Frederick Froebel some 130 years ago marked the advent of preschool education (Hodges and Spicker, 1967). In the United States preschool education is a twentieth century emphasis, although there were several nursery schools and kindergartens in existence before the turn of the century (Hammond, Dales, Skipper, and Witherspoon, 1968). According to Sears and Dowley (1963), the early purposes for establishing preschools in this country were first for training and research in child care and later for teacher employment in day care for the children of working mothers. The more recent emphasis on preschool education has been to meet the needs of all preschool

children (Read, 1966).

Preschool education in the United States entered a new phase with the establishment of Head Start programs for culturally deprived children. Through these programs, nationwide attention was drawn to the needs of preschool children especially the children of the poor (Hodges and Spicker, 1967). Biber (1967) and Getzels (1966) pointed out that culturally deprived children are born with fundamentally the same potentialities as any children, but their environment has limited, to a great extent, the development of these potentialities.

During the 1960 Annual Convention of the American Association on Mental Deficiency (Weikart, 1967), several papers presented on the final day indicated the general consensus of opinion that "preschool intervention programs might be what was needed to correct the intellectual deficiencies with which disadvantaged children start out in school [p. 163]." Weikart (1967), therefore, stated that "it is generally agreed that intervention before the culturally deprived child enters regular school is the most promising area for action [p. 163]." Similarly, Bloom (1964) concluded from a review of literature and a longitudinal study that the preschool years are the time for optimal training because it is the time of greatest intellectual growth.

With the increased interest in educational intervention (preschool programs with enriched educational experiences) for the culturally deprived child, Getzels (1966) surveyed intervention programs for preschool children, exclusive of Head Start. It was found that such programs were in existence in some 70 cities, over one-half of them having been established during or after 1964.

According to Brittain (1966), intervention programs differed in various aspects of curriculum development and purposes; however, they were all developed to a great extent on the assumption that culturally deprived children tend to do poorly in school. Consequently, the long-range goals of most preschool enrichment programs are to provide experiences for improving the child's readiness for school which in turn positively affects his school adjustment and academic achievement.

Characteristics of Culturally Deprived Children

One of the main objectives of the present interest in preschool education for the culturally deprived child, according to Spodek (1965), is to attempt to break the cycle characteristic of the poor where "the poor of one generation establish conditions which perpetuate poverty in the next generation [p. 593]."

For many years educators have been concerned with the problems of the children of the poor. It is recognized that children need individual attention and guidance in all aspects of their development to enable them to be educationally, socially, emotionally, and physically prepared for the demands of public school. For optimum success in public schools, it is evident that one of the needs of the majority of the children of the poor is experiences beyond those that their homes provide.

Lockwood and Hunnicutt (1965) related that in aspects of educational development the culturally deprived child is far behind his more fortunate peers. The lack of experiences limits the deprived child in his preparation for the learning processes and the behavioral requirements of public school (Deutsch, 1963;

Wolff, 1967). Due to his environment, the culturally deprived child's preschool years are limited in experiences that are necessary in helping him to develop concepts and vocabulary taken for granted by the middle class.

Berlin and Gotkin (1967) described the home life of the culturally deprived child as limited in intellectual and social interchange and in appropriate opportunities for the development of language and reading skills. Consequently, the culturally deprived child seems to lack curiosity and to lack motivation for achievement. He has been taught to be "good," to be seen and not heard, and not to bother adults (Brittain, 1966; Deutsch, 1963; Lockwood and Hunnicutt, 1965).

Family background. Havighurst (1964) described the socially disadvantaged or culturally deprived children as those whose families are of the lowest income bracket in American society and those whose families were originally from a rural background. These families are representative of all racial and ethnic groups and geographic locations. Witmer (1964) added that culturally deprived children usually are from large families frequently headed by the mother. Julius B. Richmond, the first Director of Head Start (Office of Economic Opportunity, 1967a), summarized the impact of poverty by saying that poverty means "many things to a family which may include several or all of the following: bad nutrition, poor clothing, deplorable housing, inadequate health and welfare services, and insufficient educational opportunities [p. 6]."

Intellectual development. Readiness for school and learning, to a great extent, are dependent upon the intellectual development of the child (Panther, 1967). Evidence indicates that the intelligence quotients of children from

socioeconomically deprived areas are approximately ten points below those of middle-class children (Hodges and Spicker, 1967). Ausubel (1967) found, however, that in almost every incidence when preschool children were removed from a nonstimulating environment and placed in an enrichment program they experienced gains in intelligence quotients. Studies (Dawe, 1942; Gray and Klaus, 1965; Weikart, 1967) showed that enriched preschool educational programs presented a dramatic spurt in mean intelligence quotient scores of children after they had completed the preschool experience. These high gains were usually not sustained after the children entered public school; however, in many cases, their intelligence quotients remained slightly higher than those of their peers from the same socioeconomic background.

In an enrichment program concentrating on the language development of orphanage children, Dawe (1942) found that the children who were in the program gained 14.2 points in IQ while the control children, who experienced no substantial change in their environment, lost 2.0 points in IQ. Similarly, Gray and Klaus (1965) revealed, through preliminary studies of their Early Training Project involving experimental and control groups of Negro children, that the experimental group with two summers in an enriched program and a two-year home intervention program gained an average of seven IQ points while the control group lost an average of five IQ points. However, Alpern (1966), in his evaluation of a short-term enrichment program for four-year-olds, found that there were no significant differences in the intelligence quotients of the experimental group who attended a nursery school three times a week for an average of

72 sessions and the control group who did not have this experience.

Weikart (1967) reported the effects of the Perry Preschool Project as favorable. The program had operated for several years and consisted of a cognitively oriented preschool. Home visits were employed to involve mothers in the educative process. The experimental group was composed of culturally deprived Negro children diagnosed as mentally retarded. The control and experimental groups were given the Stanford-Binet Intelligence Test as a means of measuring intellectual gain. Statistically significant differences between experimental and control groups were obtained at the end of the first year of participation in the project.

The studies reviewed revealed that long-term enrichment programs generally did influence intellectual gains and produced significantly higher intelligence quotients when the participants were compared with their counterparts who did not participate in enrichment programs.

School readiness. Due to their limited environment, the majority of the culturally deprived children are not ready to meet the academic and social demands of school and formal education. Readiness for school means that a child is capable of successfully mastering learning activities presented at particular times (Thompson, 1962). Cooper (1966) identified readiness for school as including more than reading readiness. He explained readiness as "dependent upon all-round development which has taken place through environment stimuli [p. 1817]." Keliher (1967) related that "readiness is a complex of many readinesses: physical coordination, mental ability, experiences with language,

self-confidence, alert curiosity, and many other things [p. 443]." Brenner (1957) emphasized that happiness or adjustment and good achievement can be seriously threatened if a child is not ready for school. "Readiness for school is a result of the interaction of factors from all personality areas. Readiness for school is a functional interrelationship between an individual child and the demands of a school [p. 118]."

Recent research (Filmer and Kahn, 1967; Hanson and Robinson, 1967) indicated that most culturally deprived children are behind, in relation to their middle-class peers, in aspects of readiness for school and learning. Kermoian (1962) found that teachers were aware of the differing degrees of readiness of their pupils and that they were effective in their appraisal of pupil readiness as their appraisals correlated highly and significantly with children's scores on the Metropolitan Readiness Test. The intervention programs are attempting to help these children socially, emotionally, physically, and mentally to become ready for school.

School adjustment. Taba (1964) indicated that the lower-class children generally have a poor chance for adjustment and academic success in regular school because of their lack of intellectual, social, and emotional readiness. The children's families are limited in educational tradition, knowledge and understanding of school and its requirements for success, educational ambitions, and experiences for social, emotional, and intellectual adjustment to school.

Hammond and Skipper (1968) found, through testing and teacher evaluations of a large sample of first-grade children, that kindergarten attendance,

scores on the Metropolitan Readiness Test, higher socioeconomic status, and chronological age upon entrance in public school all had a significant relationship to high adjustment in school. From extensive study and observation, Deutsch (1965a; 1965b) concluded that children with preschool and kindergarten experiences were more likely to be able to cope with the demands of regular school. Medinnus (1961) related, however, that research in the area of preschool education as related to public school adjustment in general was limited.

Academic achievement. Because of a number of interacting factors, the children of the poor generally fall low in level of attainment on achievement tests when compared with children of middle-class families (Karp and Sigel, 1965).

Montague (1964) found that children of low socioeconomic backgrounds scored significantly lower on arithmetic concepts or arithmetic achievement tests than did children from high socioeconomic backgrounds. Hanson and Robinson (1967), when testing reading achievement, discovered that the advantaged scored significantly higher in each grade than did the disadvantaged and that the differences in reading achievement appeared to increase at each grade level. Beilin and Gotkin (1967) supported these findings and indicated that, although social class differences in intelligence and achievement are striking in early grades,

> the differences become even greater with the lower socioeconomic group being at least two or three years behind his middle class counterpart in scholastic achievement and some ten to fifteen points lower in intelligence quotients by the seventh or eighth grade [p. 288].

Recent studies (Gray and Klaus, 1965; Weikart, 1967) reported that children who participated in an enriched preschool program scored higher on

achievement tests than children who did not have the experiences. According to Gray and Klaus (1965), the experimental subjects who had participated two summers in an enriched preschool program and a two-year home intervention program did conspicuously better on a screening test at the first-grade level than did control subjects who did not have the preschool experiences. Weikart (1967) in a follow-up study on the participants in the Perry Preschool Project revealed important findings from the scores on the California Achievement Test at the end of first grade. On all subtests and on the total battery the scores of the experimental group reached a level of statistical significance. On the total battery it was found that "the control group scored in 5th percentile level while the experimental group achieved the 22nd percentile level on national norms: a very important accomplishment for the experimental group and the Perry Preschool Project [p. 175]."

Project Head Start

With the signing of the Economic Opportunity Act (Public Law 88-452) in November, 1964, the Federal Government declared a "war on poverty." In 1965 the Federal Government sought to assist communities financially in initiating preschool programs for the culturally and economically deprived (Spodek, 1965). Project Head Start was established under the Community Action Program to give the preschool children of the poor a better beginning, a "Head Start" (Meyer, 1965; Office of Economic Opportunity, 1967a; Osborn, 1966b).

Family income determined the eligibility for Head Start. At least 90 per cent of the children enrolled in a Head Start class must qualify according to the

family income standard set by the Office of Economic Opportunity (1967a). For eligibility, the total income of a family of four must not exceed 3,000 dollars a year (Appendix A).

The Office of Economic Opportunity (1967b) described Head Start as a program for the economically and culturally deprived preschool child. It was based on the philosophy that "(1) a child can benefit most from a comprehensive interdisciplinary attack on problems at the local level and (2) the child's entire family, as well as the community, must be involved in solving his problems [p. 1]." The purposes of the Head Start Child Development Centers were "to provide services for the impoverished child and his family necessary to narrow the gap between them and their more fortunate peers [p. 2]."

The following broad goals were established for Head Start Child Development programs (Office of Economic Opportunity, 1967a):

> Improving the child's health.
>
> Helping the child's emotional and social development by encouraging self-confidence, self-expression, self-discipline and curiosity.
>
> Improving and expanding the child's ability to think, to reason, and to speak clearly.
>
> Helping children to get wider and more varied experience which will broaden their horizons, increase their ease of conversation and improve their understanding of the world in which they live.
>
> Giving the child frequent chances to succeed. Such chances may thus erase patterns of frustration and failure and especially the fear of failure.
>
> Developing a climate of confidence for the child which will make him want to learn.

> Increasing the child's ability to get along with others in his family and, at the same time, helping the family to understand him and his problems--thus strengthening family ties.
>
> Developing in the child and his family a responsible attitude toward society and fostering feelings of belonging to a community.
>
> Planning activities which allow groups from every social, ethnic and economic level in a community to join together with the poor in solving problems.
>
> Offering a chance for the child to meet and see teachers, policemen, health and welfare officers--all figures of authority--in situations which will bring respect and not fear.
>
> Giving the child a chance to meet the older children, teenagers, and adults who will serve as "models" in manners, behavior, and speech.
>
> Helping both the child and his family to a greater confidence, self-respect, and dignity [p. 11].

The Head Start Child Development Center (Office of Economic Opportunity, 1967b) was both a concept and a community facility.

> In concept it represents the drawing together of all those resources--family, community, and professional--which can contribute to the child's total development. It draws heavily on the professional skills of persons in nutrition, health, education, psychology, social work, and recreation. It recognizes that both paid and volunteer non-professionals can make important contributions.
>
> As a community facility the Child Development Center is organized around its classroom and outdoor play areas. A qualified teacher, a teacher-aide, and volunteer helpers are provided for each group of 15 to 20 children [p. 1].

Brazziel (1967) stressed that the major emphasis was placed upon the educational phase of the program. The program attempted to help the child develop a motivation for learning, a broader concept of the world around him, and familiarity with school routines. "Cultural enrichment is stressed in the educational program and teachers are encouraged to utilize community

resources for exposure to enrichment experiences [p. 344]."

Specifically the educational aims of the Head Start Programs (Office of Economic Opportunity, 1965a) were to help children:

> learn to work and play independently, at ease about being away from home, and able to accept help and direction from adults;
>
> learn to live effectively with other children, and to value one's own rights and the rights of others;
>
> develop self-identity and a view of themselves as having competence and worth;
>
> realize many opportunities to strive and to succeed--physically, intellectually, and socially;
>
> sharpen and widen language skills, both listening and speaking;
>
> be curious--that is, to wonder, to seek answers to questions;
>
> strengthen physical skills, using large and small muscles;
>
> grow in ability to express inner, creative impulses--dancing, making up songs, painting, handicrafts, etc.;
>
> grow in ability to channel inner, destructive impulses--to turn aggression into hard work, talk instead of hit, understand the difference between feeling angry and acting angry, feel sympathy for the troubles of others [p. 8].

Head Start programs also included: (1) a program of nutrition in an attempt to establish good nutrition and nutritional habits; (2) health services including complete medical and dental evaluations for each child and remedial care to correct conditions that would impede the academic and social development of the child; (3) a program of emphasized parent involvement and parent education; and (4) psychological and social services to identify specific individual and family needs and seek help in meeting these needs (Brazziel, 1967).

Accomplishments of Head Start. Head Start was planned in a few short months by a committee of national leaders representing various disciplines concerned with young children and their families. Ninety days after official plans were completed, the 1965 summer Head Start programs were under way in every state and territory in the United States (Osborn, 1966b). With few exceptions, the programs were for children eligible for first grade or kindergarten in the fall of 1965. The major purpose of the first summer program was to provide opportunities for the children to make up for some of the deficiencies in early background experiences before the age of school entrance (Office of Economic Opportunity, 1967a).

Approximately 560,000 children qualified for the first Head Start programs. These first summer programs proved successful but not enough. Therefore, with additional Federal and community appropriations and planning, Head Start programs up to twelve months were established in 1966. These programs made provisions for children from the age of three to the age when the child could enter school. In communities where the need was present, provisions were made for day care and programs for the mentally or physically handicapped were begun under Head Start planning (Office of Economic Opportunity, 1967b).

Reports, based largely on personal opinion and subjective judgment from various Head Start projects, indicated that the first summer and the following years of the program were highly successful (Norton, 1967). Leven (1966) cited that the program had many drawbacks the first year but it was also a success because

> the teachers noted improvement in the children's ability to communicate with others, to be a part of the group, to listen, to respond largely to new experiences, and to follow oral directions. Parents no longer looked at school as an unfriendly place one has to go when a child is in trouble. A number of teachers have said that the majority of children who participated in Head Start seem particularly lacking in shyness. They have an air of self-confidence, and they want to participate in the activities [p. 482].

Osborn (1966b) recognized that some teachers were unable to make the transition from teaching in the primary grades to meeting the needs of the preschool child. The majority of teachers, however, did recognize these needs, made the transition to the preschool types of curriculum, and capitalized on the small classes of children.

Osborn (1966b) indicated that the biggest contributions of Head Start were in

(1) an alerting of the teacher to the needs of the poor;
(2) a realization of the progress which could be made in eight weeks in a small-group setting;
(3) a commitment on the part of the teacher to follow through with these children in the fall [p. 344].

Osborn (1967) added that the philosophical gains as a result of Head Start were

(1) renewed interest in early childhood education;
(2) development of the concept of the Child Development Center;
(3) improvement of the teacher to pupil ratio; and
(4) attitudial changes on the part of the teachers and parents [p. 8].

Benoit (1967) summarized in a Head Start Newsletter some of the accomplishments of the program. Nearly 1.4 million preschool children had been enrolled in Head Start programs for the full year or in summer sessions by 1967.

> In two short years, Head Start can claim credit for many innovations which are gradually reduced child-teacher ratios, the use of nonprofessionals as aides in the classroom, increased parent participation, and a growing

> awareness that the child must be seen in relation to his total environment, in the home, in the classroom, and in the community [p. 6].

Research on Head Start. A review of the literature indicated that research was limited and dealt primarily with the 1965 summer projects and their immediate effects upon the participants. Osborn (1966b) reported that in Texas, first-grade teachers found that Head Start children, when compared with eligible non-Head Start children, were more proficient in learning, more intellectually curious, and better adjusted to the classrooms. Eisenberg, at Johns Hopkins University, found that Head Start children gained approximately 31 to 40 points on the Peabody Picture Vocabulary Test as compared to eligible non-Head Start children. Osborn (1966b) concluded that "while a few investigators found no gains (in intelligence quotients) over the eight-week period, most investigators found significant increases in intelligence quotients, averaging a gain of eight to ten points [p. 12]."

Norton (1967) studied 30 children who were eligible for kindergarten after participating in the summer Head Start program. The subjects were given the Metropolitan Readiness Test at the end of kindergarten. It was found that

> only three of the Head Start children in the class scored strong average or high normal. Of the thirty children tested, fourteen, or almost half, scored low normal or poor risk. Only nine scored above the 50th percentile on the readiness test [p. 118].

Norton recommended that these children have additional readiness experiences before entering first grade. Also, he suggested enriched follow-up work with these children after public school enrollment.

Hyman and Kliman (1967) assessed the atability of IQ gains of a sample

of 20 children who participated in the 1965 summer Head Start program. The experimental group had had one or two summers of Head Start and one year of kindergarten. The control group was composed of the siblings of the experimental group who had not had Head Start experiences. Both groups were tested within the first two weeks of their first-grade year. The experimental group had statistically significant gains in IQ scores after a six-week summer experience in Head Start. The experimental group in this study, however, did not score significantly higher on the Metropolitan Readiness Test than the control group although the higher scores were in the direction of the experimental group.

Wolff and Stein (1967) found that at the beginning of kindergarten, children who had participated in Head Start were initially more ready for school instruction than their classmates who were eligible but did not have Head Start experiences. This advantage seemed to persist for at least six months for many of the children, although in actual learning achievement, there was no difference between the two groups of children. Another important finding was that the kindergarten teacher was most important to the success of the child after Head Start.

When testing at the end of a kindergarten experience, McMonagel (1966) found no significant differences in readiness and achievement for those children who had a summer of Head Start and those who did not.

CHAPTER III

PROCEDURES

The purposes of this study were:

1. To compare children's readiness for first-grade instruction before and after their participation in Head Start.

2. To compare school adjustment ratings of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

3. To compare achievement test scores of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

4. To compare the verbal intelligence quotients of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

The procedures used in this study are discussed under the four headings: description of the Greensboro Head Start Program; selection and description of subjects; instruments used; collection of data; and selection of statistical tests.

Description of the Greensboro Head Start Program

Under the direction of the Greensboro Public School System, the 1966

Greensboro Head Start program was a five-month program sponsored by the Federal Government and the local Community Action Program. The five-month program began in April, 1966, and ended in August. Each center was in operation five days a week from 8:00 a.m. to 3:00 p.m.

Racial discrimination was not exercised in the selection of participants, teachers, teacher-aides, or volunteers. The classes consisted of white and non-white children and were generally staffed with a white teacher and a non-white teacher-aide or vice versa.

The teachers held college degrees in preschool education, elementary education, sociology, home economics, or other related fields. The teacher-aides were either mothers of Head Start participants or other residents of the target areas. The volunteers included parents and residents of these target areas, as well as professional and retired persons and other adults from the more affluent areas of the city. The volunteers gave of their time to the program because of their interest and concern for the children involved.

The curriculum and experiences in the Head Start centers were planned according to suggestions and guidelines prescribed by the Office of Economic Opportunity to meet the over-all goals of Project Head Start.

Selection and Description of Subjects

The subjects for this study were the second of two groups of control and experimental subjects selected under a study plan devised by Joe Stevens, Director of Federal Programs, and other Greensboro Public School personnel as an additional means of evaluating Greensboro Head Start programs. The

experimental subjects participated in a five-month Head Start program in the spring and summer of 1966 and, along with the control subjects, were in the first grade in the spring of 1967 when the follow-up testing was done.

The group studied included 200 experimental and 200 control subjects. The experimental subjects were chosen, by the use of a table of random numbers, from the entire population of approximately 600, 1966 Greensboro Head Start participants. The control group consisted of the 200, 1966-67 Greensboro first-grade children who were identified by 13 school principals as eligible, but non-participants in a 1966 Head Start program. The sample included both white and non-white subjects.

The experimental group was representative of participants in 25 classes held in 13 different schools in the Greensboro Public School System. Each class of 15 to 20 children had a teacher, teacher-aide, and community volunteers.

The 1966 Greensboro Head Start participants entered first-grade classes in the fall of 1966 in the same 13 public schools that housed the Head Start groups. They were in 37 different classrooms and their classmates included fellow Head Start participants, eligible non-participants, and children from lower-middle class families.

The families of both the experimental and control groups were residents of the urban lower-class areas of Greensboro and qualified for participation in Head Start, according to the family income level set by the Office of Economic Opportunity (Appendix A).

Instruments Used

The data for the experimental group, secured at the beginning and end of Head Start participation, were scores on the Metropolitan Readiness Test. Data for comparison of the experimental group with the control group at the end of first grade included: (1) Greensboro Public School Adjustment Inventory ratings; (2) California Achievement Test scores; and (3) Peabody Picture Vocabulary Intelligence Quotients.

Metropolitan Readiness Test. The Metropolitan Readiness Test (MRT), Form A, (Hildreth, Griffiths, and McAuvran, 1965) was a widely used test designed to determine children's initial readiness to undertake first-grade work. It was a standardized readiness test first published in 1949 and revised in 1964. Considering characteristics that contribute to success in first-grade work, the MRT consisted of six subtests: (1) Word Meaning, a picture vocabulary test; (2) Listening, a test of phrase and sentence comprehension; (3) Matching, a visual perception test involving the recognition of similarities; (4) Alphabet, a test of ability to recognize lower-case letters of the alphabet; (5) Numbers, a test of number knowledge; and (6) Copying, a measure of both visual perception and motor control.

The combined raw scores of the subtests constituted a total score which chould be converted into a letter rating. The letter ratings were similar to conventional grades: A, superior readiness; B, high normal readiness; C, average readiness; D, low normal readiness; and E, low readiness.

The reliability and validity of the MRT had been established. The

reliability coefficient for the MRT, Form A, (computed by the use of the Spearman-Brown formula for the total test) was above .90 for three different groups. Content validity was based on characteristics identified as contributing to success in first-grade work and intercorrelations among the six subtests were positive and highly significant. Correlations among the subtests of the MRT and the Murphy-Durrell Reading Readiness Test were very high, as were the correlations on the total scores on the MRT and scores on the Pintner-Cunningham Primary Mental Ability Test substantial, when testing congruent validity. Measured by results of several achievement tests, the test contributed positively to a prediction of success in first-grade work.

Greensboro Public School Adjustment Inventory. One of the goals of Head Start was to give preschool children experiences to help prepare them for school adjustment. When planning for follow-up evaluations of Project Head Start, three Greensboro public schools personnel, Dr. H. C. Connor, Director of Research; Dr. Sylvia Barnes, School Psychologist; and Joe Stevens, Director of Federal Programs, recognized a need for a measure of school adjustment. The Greensboro Public School Adjustment Inventory (GPSAI) was developed as a means of obtaining teachers' ratings of the school adjustment of their students.

The first step in developing the instrument was to compile a checklist of desirable characteristics for the school adjustment of first-grade children. Preliminary screening of items on the checklist of characteristics was done by all Greensboro Public School first-grade teachers who were instructed to rate each characteristic as "relevant" or "not relevant" to optimum school adjust-

ment were placed into one of four categories: social adjustment, work adjustment, academic adjustment, and physical adjustment. Characteristics under each of the four categories of adjustment were to be checked on a 5-point rating scale: Superior (5), Above Average (4), Average (3), Below Average (2), or Inferior (1).

The tentative form of the GPSAI was pretested by ten first-grade teachers in schools where none of the subjects were enrolled. The teachers were instructed to evaluate the school adjustment of other students whom they had taught previously at this grade level. The teachers were also asked to make comments and suggestions for the improvement of the inventory. After rating their students, the teachers indicated that an instrument of this type would be of value in assessing school adjustment. They suggested no major changes in the content of the inventory. However, no measure of reliability was made.

Final copies of the inventory (Appendix B) were printed and preparations were made to use this instrument to obtain school adjustment ratings of children in both the experimental and the control groups.

California Achievement Test. The California Achievement Test (CAT), Lower Primary, Forms W and X, (Tiegs and Clark, 1963), consisted of a series of comprehensive tests designed for the purposes of evaluation, measurement, and diagnosis of school achievement. The test was composed of three subtests: Reading, Arithmetic, and Language. Each of these tests was further divided into two parts: the Reading Subtest consisted of Reading Vocabulary and Reading Comprehension; the Arithmetic Subtest consisted of Arithmetic Reasoning and

Arithmetic Fundamentals; and the Language Subtest consisted of Mechanics of English and Spelling.

Used widely in the educational field, the CAT was designed as a group test with means of converting raw scores into predicted grade placements, percentile ranks, and a graphically illustrated diagnostic achievement profile for each student.

The reliability and validity of the CAT have been established. At the grade placement level of grade 1.7, the reliability coefficient for 115 cases, computed by using the Kuder-Richardson formula for the total battery, was .95. The items in the CAT were selected to measure the extent of student mastery of fundamental skills and the ability of the student to make intelligent use of the facts and skills at his disposal. The content validity was determined by extensive evaluation by a group of experts in the educational field. The content validity for each grade level was also determined by pretesting as a means of computing the discriminating power and the difficulty of each item. The construct validity was determined by relating achievement to mental age on the assumption that there should be a strong positive correlation between school achievement and intelligence; all correlation coefficients were substantial.

Peabody Picture Vocabulary Test. The Peabody Picture Vocabulary Test (PPVT), Form B, (Dunn, 1965) was designed to provide an estimate of a subject's verbal intelligence through measuring his hearing vocabulary. The test consisted of three practice plates and 150 test plates each with four line-drawing pictures made for illustrative words found in Webster's New Collegiate

Dictionary, Second Edition (1956). The examiner read the stimulus word and the subject responded by pointing or verbally indicating the picture that best illustrated the word. The manual suggested appropriate starting points for each age as items are arranged in ascending order of difficulty. The subject responded only to the items between his "basal" (eight consecutive correct responses) and his "ceiling" (six failures out of eight consecutive responses).

The PPVT was designed for ages 2 1/2 to 18 but was most often used with the preschool and lower-primary age child. The PPVT has been one of the most frequent measures of intelligence for Head Start samples. The test was short and easy to administer. The total scores could be converted to a derived scores for percentile rank, mental age, or standard score deviation IQ with a mean of 100 and a standard deviation of 15.

Alternate form reliability coefficients for the PPVT, calculated by the Pearson product-moment correlations on the raw scores of the standardization subjects, were .74 at the 7.0 age level. Further studies indicated that the reliability coefficients calculated were comparable to those found for the standardization population. The validity of the test has been accepted as moderate.

Collection of Data

The Metropolitan Readiness Test, Form A, was administered to all Head Start participants before and after their participation in the Head Start Program. The tests were administered in most cases by either the Head Start teacher or teacher-aide within the first two weeks of the program and again within the last two weeks of the program. After the sample was selected, the

pre- and posttest scores were transferred from individual test booklets to a uniform score sheet. Only the scores of those subjects who had both pre- and posttest were used in the analysis.

Follow-up testing to determine school adjustment, academic achievement and verbal IQ, was done during the last month of school, May, 1967. Both the experimental and control subjects were completing their first year in public school.

The cooperation of the first-grade teachers was requested by the Greensboro Public School Director of Federal Programs on the basis that testing was necessary in order to secure information vital to Federal Project planning and budget allocation justification. Instead of testing all first-grade children, they were asked to test a predetermined sample of first-grade children.

No reference to Head Start was made but each test or score sheet was inconspicuously keyed by a corner clip for experimental subjects and a pin hole for control subjects. At the Office of the Director of Federal Programs, the tests were keyed and the subject's name, school, grade, and teacher were typed on the individual tests. The test booklets bearing the subjects' names were arranged alphabetically and packaged with necessary directions for administration. Each package bore the name of the appropriate school, first-grade teacher, and an alphabetical list of the names of subjects.

The California Achievement Test was administered by first-grade teachers as a group test to all children in their classes who were part of the sample. The tests were scored by assistants at the Greensboro Public School's

office. For the purposes of this study, only the Reading Subtest and Arithmetic Subtest scores were used.

The teachers were asked to rate the same children using the Greensboro Public School Adjustment Inventory. For the purposes of this study the ratings were combined into a single score to the nearest tenth of a point for each of the four areas of adjustment.

As an additional means of comparing the experimental and control groups, the Peabody Picture Vocabulary Test was administered by psychology students from Greensboro College. Each student administered the test individually to a number of the subjects. The testers were not informed as to who were control and who were experimental subjects. After having given the tests, the psychology students individually scored each test. For the purpose of this study the raw scores, according to chronological age, were converted to IQ scores.

For convenience and ease in working with the data, the investigator devised a summary sheet (Appendix C) for recording test scores for each subject. All experimental subjects with both pre- and post-Metropolitan Readiness Test scores were used in the analysis to determine readiness for first-grade instruction. Only subjects with complete scores on all three instruments, used at the end of first grade, were used for comparison of the control and experimental groups.

Selection of Statistical Tests

The purposes of this study were to compare children's readiness for

first-grade instruction before and after their participation in Head Start and to compare school adjustment ratings, achievement test scores, and verbal intelligence quotients of first-grade children who had Head Start experiences with those who were eligible but did not.

Analyses of data were made with the following statistical tests:

1. Comparison of differences in pre- and posttest raw scores for the Metropolitan Readiness Test with a _t_ test for paired observations (Ferguson, 1966, pp. 169-170).

2. Comparison of differences in pre- and posttest raw scores of girls and boys separately for the Metropolitan Readiness Test with a _t_ test for paired observations (Ferguson, 1966, pp. 169-170).

3. Comparison of differences between groups for school adjustment, academic achievement, and verbal IQ with a _t_ test for unpaired observations (Ferguson, 1966, p. 167).

4. Comparison of differences between girls and boys within each group for school adjustment, academic achievement, and verbal IQ with a _t_ test for unpaired observations (Ferguson, 1966, p. 167).

The .01 level of significance was chosen for accepting the hypotheses of the study.

CHAPTER IV

ANALYSES OF DATA

The analyses of data for this study are presented under the headings of treatment of data; Head Start participants' readiness for first grade; school adjustment of Head Start participants compared with eligible non-participants; academic achievement of Head Start participants compared with eligible non-participants; and verbal intelligence quotients of Head Start participants compared with eligible non-participants.

Treatment of Data

The sample selected for study included 200 randomly chosen 1966 Greensboro, North Carolina Head Start participants and 200, 1966 eligible non-participants. For statistical analyses, only the 130 experimental subjects with both pre- (at the beginning of Head Start) and post- (at the end of Head Start) Metropolitan Readiness Test scores were used. For statistical comparison of the experimental with the control group, data were used for only the 112 experimental subjects and 154 control subjects with scores on all three tests administered at the end of the first grade.

To test statistically, the *t* test for paired observations (Ferguson, 1966, pp. 169-170) was used to determine the significance of difference between the scores on the pre- and post-readiness tests. The *t* for unpaired observations

(Ferguson, 1966, p. 167) was used to determine the significance of difference between the experimental and control groups on school adjustment, academic achievement, and verbal intelligence quotients. The .01 level of significance was chosen for accepting the hypotheses of the study.

Head Start Participants' Readiness for First Grade

To compare children's readiness for first-grade instruction before and after participation in Head Start, scores on pre- and post- Metropolitan Readiness Tests were used. Pre- and posttest scores were available for 69 girls and 61 boys for a total of 130 experimental subjects. A *t* test for paired observations was used to determine whether or not there were significant differences in pre- and posttest scores for the entire group. Further analyses using a *t* test for paired observations were made separately to determine if there were significant differences in pre- and posttest scores for girls and for boys.

The experimental subjects scored significantly higher on the posttest than on the pretest (Table 1). Also, both girls and boys scored significantly higher on the readiness test given at the end than at the beginning of Head Start.

The total group of 130 experimental subjects had a mean pretest score of 35.300 at the beginning of Head Start participation and a mean posttest score of 43.038 after Head Start participation. The *t* value for the differences on the Metropolitan Readiness Test scores was 8.128; therefore, the difference between the mean pre- and posttest scores were significant at the .01 level.

The raw scores of the Metropolitan Readiness Test were converted into letter ratings: A, superior readiness; B, high normal readiness; C, average

TABLE 1

Mean Pre- and Post- MRT Scores for Head Start Participants

Subjects	N	Pretest $\bar{X}_1$	Posttest $\bar{X}_2$	$\bar{D}(\bar{X}_1 - \bar{X}_2)$	$s_{\bar{D}}$	t
Girls	69	37.246	45.666	8.420	1.537	5.478*
Boys	61	33.098	40.065	6.967	1.053	6.616*
Total Group	130	35.300	43.038	7.738	.952	8.128*

*Significant at the .01 level.

readiness; D, low normal readiness; and E, low readiness. The letter rating frequencies for the experimental girls and boys and the combined group for the pre- and posttest scores are presented in Table 2.

School Adjustment of Head Start Participants Compared with Eligible Non-participants

The GPSAI consisted of four different areas of school adjustment: social, work, academic, and physical. The experimental group was compared with the control group on each area of adjustment by means of a t test for unpaired observations. Comparisons between girls and boys within each group were also made by t tests for unpaired observations. On each item under the areas of adjustment, the subjects were rated Superior (5), Above Average (4), Average (3), Below Average (2), or Inferior (1). A mean score from the items under each area of

TABLE 2

Letter Rating Frequencies on Pre- and Post-MRT Scores for Head Start Participants

Letter Rating	Pretest (April 1966) Girls	Boys	Total	Posttest (August 1966) Girls	Boys	Total
A				1	1	2
B	2	2	4	10	3	13
C	12	7	19	22	17	39
D	48	39	87	33	34	67
E	7	13	20	3	6	9
Total	69	61	130	69	61	130

adjustment was used for analysis.

Social adjustment. The mean rating for the experimental group was 3.102 on social adjustment, while the mean rating for the control group was 2.962. The difference between the two groups on social adjustment proved significant.

The girls of the experimental group rated significantly higher on social adjustment than did the boys of the same group. Although the girls of the control group rated higher than the boys, there was no significant difference in social adjustment between the boys and girls of this group (Table 3).

Work adjustment. The mean rating for the experimental group was 2.966 on work adjustment; the mean rating of 2.627 was obtained for the control

TABLE 3

Comparison of Head Start Participants with Eligible Non-participants on Mean Social Adjustment Ratings of the GPSAI

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - \bar{x}_2}$	t
Experimental Group	112	3.102	.140	.044	3.181*
Control Group	154	2.962			
Experimental Group					
Girls	59	3.264	.342	.079	4.329*
Boys	53	2.922			
Control Group					
Girls	77	3.019	.114	.063	1.809
Boys	77	2.905			

*Significant at the .01 level.

group. The mean difference between the work adjustment ratings for the experimental group was significant at the .01 level, when compared with the control group.

There was also a significant difference between the mean work adjustment ratings for experimental girls when compared with experimental boys. The difference between the girls and boys of the control group on work adjustment,

however, was not significant at the .01 level (Table 4).

TABLE 4

Comparison of Head Start Participants with Eligible Non-participants on Mean Work Adjustment Ratings of the GPSAI

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - \bar{x}_2}$	t
Experimental Group	112	2.966	.339	.054	6.277*
Control Group	154	2.627			
Experimental Group					
Girls	59	3.129	.493	.094	5.244*
Boys	53	2.636			
Control Group					
Girls	77	2.719	.184	.083	2.216
Boys	77	2.535			

*Significant at the .01 level.

Academic adjustment. A mean score for ratings on arithmetic, reading, and language was used for the analysis of academic adjustment. Information in Table 5 indicates mean academic adjustment ratings. For the experimental group a mean rating of 2.633 was obtained on academic adjustment while the mean

TABLE 5

Comparison of Head Start Participants with Eligible Non-participants on Mean Academic Adjustment Ratings of the GPSAI

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - x_2}$	t
Experimental Group	112	2.633	.272	.063	4.317*
Control Group	154	2.361			
Experimental Group					
Girls	59	2.815	.383	.089	4.303*
Boys	53	2.432			
Control Group					
Girls	77	2.427	.132	.094	1.404
Boys	77	2.295			

*Significant at the .01 level.

rating of the control group was 2.361. The experimental group, therefore, rated significantly higher on academic adjustment than did the control group.

In Table 5 it is also shown that there was a significant difference between the mean academic adjustment rating of experimental girls and boys with the girls having the higher mean rating. However, there was no significant difference between the control girls and boys on mean academic adjustment ratings.

Physical adjustment. The mean physical adjustment rating for the experimental group was 3.131, while the control group had a mean physical adjustment rating of 2.977. There was a statistically significant difference between the experimental and control groups on physical adjustment ratings. As indicated in Table 6, however, there was no significant difference on physical adjustment ratings between boys and girls in either group.

TABLE 6

Comparison of Head Start Participants with Eligible Non-participants on Mean Physical Adjustment Ratings of the GPSAI

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - \bar{x}_2}$	t
Experimental Group	112	3.131	.154	.044	3.500*
Control Group	154	2.977			
Experimental Group					
Girls	59	3.167	.057	.077	.870
Boys	53	3.096			
Control Group					
Girls	77	3.030	.105	.063	1.666
Boys	77	2.925			

*Significant at the .01 level.

There was a statistically significant difference between the experimental group and the control group when the ratings on all four categories of school adjustment were compared. On each category of school adjustment, the experimental group had a significantly higher mean rating score than did the control group.

Academic Achievement of Head Start Participants Compared with Eligible Non-participants

Only the raw scores on the Reading Subtest and the Arithmetic Subtest of the California Achievement Test were used for comparison of academic achievement for the experimental and control subjects. Due to the level of difficulty for the first grade, the Language raw scores and thus the total raw scores were not used for statistically comparing the two groups.

Reading Subtest. As seen in Table 7, the mean raw score for the experimental group on the Reading Subtest was 43.616 and the mean raw score for the control group was 38.681. The 4.935 mean difference proved to be significant at the .01 level.

When the Reading Subtest scores for girls and boys within each group were compared, there was a significant difference in the scores of girls and boys in the experimental group with the girls having a higher reading mean score. Although the girls of the control group had a higher mean raw score on reading, there was no significant difference between the girls and boys in the control group on the Reading Subtest scores.

Arithmetic Subtest. The mean score for the experimental group on

TABLE 7

Comparison of Head Start Participants with Eligible Non-participants on Mean Reading Subtest Raw Scores of the CAT

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - \bar{x}_2}$	t
Experimental Group	112	43.616	4.935	1.361	3.626*
Control Group	154	38.681			
Experimental Group					
Girls	59	47.640	8.510	2.221	3.828*
Boys	53	39.130			
Control Group					
Girls	77	40.389	3.420	1.658	2.059
Boys	77	36.974			

*Significant at the .01 level.

arithmetic was 36.160 and for the control group the score was 34.603. The 1.557 mean difference between the arithmetic scores for the experimental and control groups was not significant at the .01 level (Table 8).

When the Arithmetic Subtest scores for girls and boys within each group were compared, there was a significant difference between the arithmetic scores of the experimental girls and boys with the experimental girls having a higher

TABLE 8

Comparison of Head Start Participants with Eligible Non-participants on Mean Arithmetic Subtest Raw Scores of the CAT

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - \bar{x}_2}$	t
Experimental Group	112	36.160	1.557	1.817	.856
Control Group	154	34.603			
Experimental Group					
Girls	59	40.220	8.580	2.783	3.082*
Boys	53	31.641			
Control Group					
Girls	77	34.194	-.818	2.377	-.344
Boys	77	35.012			

*Significant at the .01 level.

mean Arithmetic Subtest score. The boys of the control group had a higher mean Arithmetic Subtest score than did the girls but the difference was not significant at the .01 level.

There was a significant difference between the experimental group and control group on the Reading Subtest of the California Achievement Test. The mean difference between the experimental group and the control group on the raw

scores of the Arithmetic Subtest of the California Achievement Test was not significant.

Verbal Intelligence Quotients of Head Start Participants Compared with Eligible Non-participants

The summary of the findings for comparison of IQ as measured by the Peabody Picture Vocabulary Test is shown in Table 9. The mean intelligence quotients converted from raw scores in relation to chronological age were used for statistical analysis by use of t tests for unpaired observations. The experimental group had a mean IQ of 90.339; the mean IQ for the control group was 84.603 which is 5.736 points lower than the experimental group. This difference was significant at the .01 level.

There was no significant difference between the mean IQ of experimental girls and boys. However, the boys of the control group scored significantly higher on the IQ test than did the girls of the control group.

Summary of Findings

The 1966 Greensboro Head Start participants scored significantly higher on the post-MRT than on the pre- MRT. When the pre- and posttest scores for the girls and boys of the experimental group were compared separately both girls and boys scored significantly higher on the post-readiness test. On the basis of the findings, it can be asserted that the 1966 Greensboro Head Start participants were more adequately prepared for first-grade instruction after having had five months of Head Start participation.

TABLE 9

Comparison of Head Start Participants with Eligible Non-participants on Mean Intelligence Quotients for the PPVT

Subjects	N	$\bar{X}$	$\bar{X}_1 - \bar{X}_2$	$s_{\bar{x}_1 - \bar{x}_2}$	t
Experimental Group	112	90.339	5.736	1.131	5.071*
Control Group	154	84.603			
Experimental Group					
Girls	59	90.813	1.002	1.649	.607
Boys	53	89.811			
Control Group					
Girls	77	82.363	-4.481	1.529	-2.930*
Boys	77	86.844			

*Significant at the .01 level.

The results of the statistical analyses were in favor of the Head Start participants when compared with eligible non-participants at the end of first grade. Although the results of the GPSAI should be interpreted with caution because of the lack of standardization and extensive validity and reliability testing of the inventory, the findings depict a valuable indication of school adjustment of Head Start participants and eligible non-participants as rated by public school

teachers. The Head Start participants rated significantly higher than did the eligible non-participants on all divisions of the school adjustment inventory. On the basis of the findings, it can be concluded that the 1966 Greensboro Head Start participants were more adjusted to school than eligible non-participants.

The Head Start participants also scored higher on the academic achievement tests than did eligible non-participants. Head Start participants scored significantly higher on the Reading Subtest but not the Arithmetic Subtest of the CAT. The verbal IQ was 5.736 points higher for the Head Start participants than for the eligible non-participants; this difference was significant at the .01 level.

As an additional step in the analyses of the data, scores and ratings for girls and boys within the groups were compared. The girls in both groups rated higher than the boys of their group on all categories of the GPSAI. The girls of the experimental group rated significantly higher than the boys of the same group on social, work, and academic adjustment to school; the difference between the experimental girls and boys on physical adjustment was not significant, however. Although the girls of the control group rated higher than the boys of the same group on all categories of school adjustment, the differences between the girls and boys of this group were not significant.

The girls of the experimental group also scored significantly higher than did the boys of the experimental group on the Reading Subtest and the Arithmetic Subtest of the CAT. The girls of the experimental group had a higher but not significantly higher mean verbal IQ than the boys of the same group.

Although the girls of the control group scored higher than the boys on the Reading Subtest and the boys of the control group scored higher than the girls on the Arithmetic Subtest, the differences were not significant. However, the mean verbal IQ of the boys of the control group was significantly higher than the mean verbal IQ of the girls of the control group.

The fact that most girls of five or six years of age tend to mature earlier than boys of the same age may account for higher school readiness test scores and thus higher scores on school adjustment, academic achievement, and verbal intelligence quotients. Generally girls of this age do tend to adjust more readily to school and to rate higher on academic achievement than boys of the same age. The significantly higher ratings and scores for the experimental girls lead one to question whether Head Start experiences might be more effective for girls than boys. The findings also lead one to question other differences in the two groups. Head Start participation may not be the only determining factor in the differences between the control and experimental groups and the differences between the girls and boys within the experimental group.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

For many years educators have been concerned with the problems of the children of the poor. Many culturally deprived children tend to do poorly in public school (Brittain, 1966). Educators have found that preschool education with enriched educational and social experiences before the culturally deprived children entered regular school seemed to be one of the most promising areas of action (Weikart, 1967). It is evident that the preschool years are the years for optimal training because this is the time of greatest intellectual growth (Bloom, 1964). Preschool children also need individual attention and guidance in all aspects of their development in order to be educationally, socially, emotionally, and physically prepared for the demands of public school. Many of the home environments of the poor do not provide adequate experiences to meet the needs of the preschool child's optimum preparation for successful public school experiences.

In 1965 the Federal Government sought to assist communities financially in initiating preschool programs for the culturally and economically deprived (Spodek, 1965). Project Head Start was established under the Community Action Program to give the preschool children of the poor a better beginning, a "Head Start" (Meyer, 1965; Office of Economic Opportunity, 1967a; Osborn, 1966b).

The purposes of Head Start were to identify and to attempt to meet some of the needs for the total development of the culturally deprived child. The educational goals of Head Start were to provide the culturally deprived child with experiences to develop skills and abilities that help to prepare him for adjustment to and success in public schools (Office of Economic Opportunity, 1967a).

Studies on the effects of Head Start are limited and are primarily concerned with the results of the first summer program. Studies of school adjustment and academic achievement of Head Start participants compared with school adjustment and academic achievement of eligible non-participants need to be made. Follow-up studies of Head Start children would be of value to those planning Head Start programs and other programs for the culturally deprived child, to Head Start teachers, to public school teachers, and to others concerned with child development.

The purposes of this study were:

1. To compare children's readiness for first-grade instruction before and after their participation in Head Start.

2. To compare school adjustment ratings of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

3. To compare achievement test scores of first-grade children who had Head Start experiences with those who were eligible but did not have Head Start experiences.

4. To compare the intelligence quotients of first-grade children who

had Head Start experiences with those who were eligible but did not have Head Start experiences.

The subjects selected for this study included an experimental group of 200 children randomly chosen from the 1966 Greensboro Head Start participants who entered first grade in the fall of 1966. The control group included 200 children who entered first grade in the fall of 1966 and who were identified by school principals as eligible for Head Start but were non-participants in a 1966 Head Start program.

The Metropolitan Readiness Test was given to the experimental group at the beginning and at the end of the Head Start experiences to determine whether or not there were differences in their readiness for school after Head Start participation. Data for comparison of the experimental group with the control group at the end of first grade included: (1) the Greensboro Public School Adjustment Inventory ratings to determine school adjustment as rated by first-grade teachers; (2) California Achievement Test scores on the Reading Subtest and the Arithmetic Subtest to assess academic achievement; and (3) the Peabody Picture Vocabulary Test to identify verbal intelligence quotients.

Due to absence from school, sickness, and a change of schools, scores for the entire sample were not available; therefore, the statistical analyses were limited to the subjects with available test scores. Pre- and post-readiness test scores were available for 130 of the experimental subjects for statistical analyses. All three test scores (at the end of first grade) for 112 experimental subjects and 154 control subjects were available for statistical

analyses.

The hypotheses of this study were:

Hypothesis I. Participants at the end of the Head Start program score significantly higher on a readiness test than they did at the beginning of the program.

Hypothesis II. At the end of first grade, Head Start participants rate significantly higher on a school adjustment inventory than eligible non-participants.

Hypothesis III. At the end of first grade, Head Start participants score significantly higher on achievement tests than eligible non-participants.

Hypothesis IV. At the end of first grade, Head Start participants score significantly higher on a verbal intelligence test than eligible non-participants.

The four hypotheses were statistically tested by use of *t* tests with the level of significance set at .01.

Hypothesis I was accepted for there was a significant difference between the mean pre- and post-Metropolitan Readiness Test scores with the mean post-test being higher.

Hypothesis II was accepted for there was a significant difference between the experimental group and the control group on school adjustment ratings with the experimental group having a higher mean rating on all categories: social adjustment, work adjustment, academic adjustment, and physical adjustment. The experimental group had mean scores between 2.663 and 3.131 on the areas of school adjustment; thus, the experimental group ratings were average or near

average in all areas. The control group had mean scores between 2.361 and 2.977 on the areas of school adjustment; thus, the control group rated below average or near average on all areas.

Hypothesis III could not be accepted for there was a statistically significant difference between the experimental and control group on the Reading Subtest but not on the Arithmetic Subtest of the academic achievement test. Results of the tests performed show no significant difference between the two groups on the Arithmetic Subtest although the experimental group had a higher mean score on both academic achievement subtests.

Hypothesis IV was accepted for there was a significant difference between the mean IQ of the experimental and the control group with the experimental group having the higher mean IQ.

Conclusions

The evidence presented in this study was based on data secured from a random sample of 1966 Greensboro Head Start participants who were in a five-month program. These Head Start participants were compared with eligible non-participants at the end of first grade. Certain conclusions seem justified.

1. The 1966 Greensboro Head Start participants were more ready for first-grade instruction after having had five months of Head Start experiences.

2. The Head Start participants were rated by their first-grade teachers as having better social, work, academic, and physical adjustment to public school than their classmates who were eligible non-participants in Head Start.

3. Participants who had had a variety of experiences in language arts,

conversation, and other learning experiences in Head Start scored significantly higher on reading achievement than the eligible non-Head Start participants; however, Head Start participants did not achieve significantly higher arithmetic test scores than eligible non-participants.

4. At the end of first grade, the Head Start participants had a significantly higher mean verbal intelligence quotient than eligible non-participants. More experience in testing as well as five months of enriched preschool education may account for this significant difference in verbal intelligence quotients.

Recommendations

From this study the following recommendations seem justified.

1. An immediate follow-up testing to secure scores for all subjects who were not in school on the day of testing.

2. An investigation comparing the experimental with the control group (on readiness and IQ) before the experimental group had the Head Start experience, thus providing a more meaningful comparison of all groups.

3. Follow-up studies on school adjustment, academic achievement, and IQ with the same experimental and control groups at the end of second grade, and future grades, to determine whether or not the differences between the two groups continue to exist.

4. A study comparing a group of Head Start participants with eligible and non-eligible non-participants to indicate whether Head Start participants approximate or exceed non-eligible non-participants.

5. A study to investigate differences other than Head Start participation

that existed between participants and eligible non-participants.

6. Additional testing to develop reliability and validity of the Greensboro Public School Adjustment Inventory as an evaluative instrument for teacher ratings of children's school adjustment.

REFERENCES

REFERENCES

Alpern, G. D. The failure of a nursery school enrichment program for culturally disadvantaged children. American Journal of Orthopsychiatry, 1966, 36, 244-245.

Ausubel, D. P. How reversible are the cognitive and motivational effects of cultural deprivation? In A. H. Passow, M. Goldberg, & A. J. Tannenbaum (Eds.), Education of the disadvantaged. New York: Holt, Rinehart, & Winston, 1967. Pp. 287-306.

Beilin, H., & Gotkin, L. G. Psychological issues in the development of mathematics curricula for socially disadvantaged children. In A. H. Passow, M. Goldberg, & A. J. Tannenbaum (Eds.), Education of the disadvantaged. New York: Holt, Rinehart, & Winston, 1967. Pp. 287-306.

Benoit, W. The accomplishments of Head Start. Head Start Newsletter, 1967, Special Issue, 16.

Biber, B. Educational needs of young deprived children. Childhood Education, 1967, 44, 30-36.

Bloom, B. S. Stability and change in human characteristics. New York: Wiley, 1964.

Brazziel, W. F. Two years of Head Start. Phi Delta Kappan, 1967, 48, 344-348.

Brenner, A. Nature and meaning of readiness for school. Merrill-Palmer Quarterly, 1957, 3, 114-135.

Brittain, C. V. Preschool programs for culturally deprived children. Children, 1966, 13, 131-134.

Cooper, M. G. When is the child ready to begin schooling? The Times Educational Supplement, 1966, 2664, 1817.

Dawe, H. C. A study of the effect of an educational program upon language development and related mental functions in young children. Journal of Experimental Education, 1942, 11, 200-209.

Deutsch, M. The disadvantaged child and the learning process. In A. H. Passow (Ed.), Education in the depressed areas. New York: Teachers College, Columbia University, 1963. Pp. 163-179.

Deutsch, M. Early social environment and school adaptation. Teachers College Record, 1965, 66, 699-706. (a)

Deutsch, M. What we've learned about disadvantaged children. Nations Schools, 1965, 75(4), 50-51. (b)

Dunn, L. M. Expanded manual for the Peabody Picture Vocabulary Test. Minneapolis: American Guidance Service, 1965.

Ferguson, G. A. Statistical analysis in psychology and education. New York: McGraw-Hill, 1966.

Filmer, H. T., & Kahn, H. S. Race, socio-economic level, housing, and reading readiness. Reading Teacher, 1967, 21, 153-157.

Getzels, J. W. Preschool education. Teachers College Record, 1966, 68, 219-228.

Gray, S. W., & Klaus, R. A. An experimental preschool program for culturally deprived children. Child Development, 1965, 36, 887-898.

Hammond, S. L., Dales, R. J., Skipper, D. S., & Witherspoon, R. L. Good schools for young children. (2nd ed.) New York: Macmillan, 1968.

Hammond, S. L., & Skipper, D. S. Factors involved in the adjustment of children entering first grade. Journal of Educational Research, 1962, 56, 89-95.

Hanson, E., & Robinson, H. A. Reading readiness and achievement of primary grade children of different socio-economic strata. Reading Teacher, 1967, 21, 52-56, 79.

Havighurst, R. J. Who are the socially disadvantaged? Journal of Negro Education, 1964, 33, 210-217.

Hildreth, G. H., Griffiths, N. L., & McGauvran, M. E. Manual of directions: Metropolitan Readiness Test. New York: Harcourt, Brace, & World, 1965.

Hodges, W. L., & Spicker, H. H. The effects of preschool experiences on culturally deprived children. Young Children, 1967, 23, 23-43.

Hyman, I. A., & Kilman, D. S. First grade readiness of children who have had Head Start programs. Training School Bulletin, 1967, 63, 163-167.

Karp, J. M., & Sigel, I. Psychoeducational appraisal of disadvantaged children. Review of Educational Research, 1965, 35, 401, 412.

Keliher, A. V. Many dimensions of readiness. Childhood Education, 1967, 43, 442-443.

Kermoian, S. B. Teachers appraisal of first grade readiness. Elementary English, 1962, 39, 196-201.

Levens, D. A look at Project Head Start. Childhood Education, 1966, 42, 481-483.

Lockwood, J. D., & Hunnicutt, C. W. Whither Project Head Start? Educational Digest, 1965, 31(4), 12-14.

McMonagle, S. K. Efficancy of Project Head Start for kindergarten instruction. Unpublished master's thesis, John Carroll University, 1966.

Medinnus, G. R. The development of a first grade adjustment scale. Journal of Experimental Education, 1961, 30, 243-248.

Meyer, A. L. Project Head Start. Childhood Education, 1965, 41, 431-432.

Montague, D. O. Arithmetic concepts of kindergarten children in contrasting socioeconomic areas. Elementary School Journal, 1964, 64, 393-397.

Norton, M. S. After Project Head Start--What next? Elementary School Journal, 1967, 67, 179-183.

Office of Economic Opportunity. Project Head Start: Daily program I. Washington, D. C.: OEO, 1965. (a)

Office of Economic Opportunity. Project Head Start: The staff. Washington, D. C.: OEO, 1965. (b)

Office of Economic Opportunity. An invitation to help: Project Head Start. Washington, D. C.: OEO, 1967. (a)

Office of Economic Opportunity. Head Start Child Development Program: A manual of policies and instructions. Washington, D. C.: OEO, 1967. (b)

Osborn, D. K. A look at child development centers--Operation Head Start. Reading Teacher, 1966, 19, 332-334. (a)

Osborn, D. K. Head Start--past, present, and future. University of Illinois: Bevier Lecture Series, 1966. (b)

Osborn, D. K. Some gains from the Head Start experience. Childhood Education, 1967, 44, 8-11.

Panther, E. E. Prediction of first-grade reading achievement. Elementary School Journal, 1967, 68, 44-48.

Read, K. H. The nursery school: A human relationships laboratory. (4th ed.) Philadelphia: W. B. Saunders, 1966.

Sears, P. S., & Dowley, E. M. Research on teaching in the nursery school. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago: Rand McNally, 1963. Pp. 814-864.

Spodek, B. Poverty, education, and the young child. Educational Leadership, 1965, 22, 593-604.

Taba, H. Cultural deprivation as a factor in school learning. Merrill-Palmer Quarterly, 1964, 10, 147-159.

Thompson, G. C. Child psychology. (2nd ed.) Boston: Houghton Mifflin, 1962.

Tiegs, E. W., & Clark, W. W. Manual: California Achievement Tests, Lower Primary, Forms W & X. Monterey, California: California Test

Bureau, 1963.

Weikart, D. P. Preschool programs: Preliminary findings. Journal of Special Education, 1967, 1, 163-181.

Witmer, H. L. Children and poverty. Children, 1964, 11, 207-213.

Wolff, M. Is the bridge completed? Childhood Education, 1967, 44, 12-15.

Wolff, M., & Stein, A. Head Start six months later. Phi Delta Kappan, 1967, 48, 349-350.

APPENDIXES

APPENDIX A

HEAD START

Child Development Programs

HOW IS POVERTY DEFINED?
WHO CAN BE HELPED?

Federal assistance for Head Start is available only for local programs which serve areas with a high rate of poverty. The degree of poverty in a community can be measured by the extent of persistent unemployment and underemployment, by the proportion of a community's families on welfare and the number of families with low incomes.

There is no one income level to be used to classify a family as impoverished. Instead, it is essential to consider the number of people in a household when making the determination. It is also possible that other factors may be important in establishing the poverty level in a given community or household. The chart below gives income levels and household sizes to be used in helping to measure the number of families which are impoverished. Generally, if a family's income is no more than that listed, it can be considered impoverished.

Non-Farm Households		Farm Households	
Persons	Family Income	Persons	Family Income
1	$1,500	1	$1,050
2	2,000	2	1,400
3	2,500	3	1,750
4	3,000	4	2,100
5	3,500	5	2,450
6	4,000	6	2,800
7	4,500	7	3,150
Above 7	5,000	Above 7	3,500

It should be pointed out that the level of family income need not be a specific requirement for admission to a Head Start Center as long as the program is primarily reaching the poor within the neighborhood. For group activities it is essential that at least 90% of the children taking part be poor (Office of Economic Opportunity, 1967 (a), p. 13).

APPENDIX B

SCHOOL ADJUSTMENT INVENTORY

Greensboro Public Schools
Greensboro, N. C.

INSTRUCTIONS: In comparison with all the other students whom you have taught at this particular grade level in the past, please evaluate the pupil listed below on social, work, academic, and physical adjustment. On each of the characteristics listed below, please rate the student by checking either: superior (5), above average (4), average (3), below average (2), or inferior (1).

IDENTIFICATION INFORMATION:

Student's Name_____ Student's No._____
Last, First Middle

School_____ Grade_____

Name of Teacher making ratings_____

A. SOCIAL ADJUSTMENT.

1. Pupil works well with other children in his class.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

2. Pupil plays well with other children in his class.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

B. WORK ADJUSTMENT

1. Pupil follows instructions.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

2. Pupil works independently.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

3. Pupil interacts normally with his teachers.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

4. Pupil interacts normally with other adults in the school.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

C. ACADEMIC ADJUSTMENT

1. Pupil is able to achieve satisfactorily at his present grade level in reading.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

2. Pupil is able to achieve satisfactorily at his present grade in language.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

3. Pupil completes assigned tasks.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

4. Pupil takes care of his own materials and books.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

D. PHYSICAL ADJUSTMENT

1. Pupil's physical movements are well coordinated.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

2. Pupil is successful in game and play activities which require the use of large muscle groups.
Please rate by checking:
___Superior (5)
___Above Average (4)
___Average (3)
___Below Average (2)
___Inferior (1)

3. Pupil is able to achieve satisfactorily at his present grade level in arithmetic.
   Please rate by checking:
   ___Superior (5)
   ___Above Average (4)
   ___Average (3)
   ___Below Average (2)
   ___Inferior (1)

3. Pupil's finger and manual dexterity are adequate for handling instructional materials and lunch room implements.
   Please rate by checking:
   ___Superior (5)
   ___Above Average (4)
   ___Average (3)
   ___Below Average (2)
   ___Inferior (1)

APPENDIX C

DATA SHEET

Number_____

Subject_____ Sex_____ Date of Birth_____

School_____

Teacher_____

METROPOLITAN READINESS TEST

PRE-TEST
Raw Score_____
Letter Rating_____
Percentile Rank____

POST-TEST
Raw Score_____
Letter Rating_____
Percentile Rank____

CALIFORNIA ACHIEVEMENT TEST

READING
Raw Score_____
Grade Placement___
Percentile Rank____

ARITHMETIC
Raw Score_____
Grade Placement___
Percentile Rank____

LANGUAGE
Raw Score_____
Grade Placement___
Percentile Rank____

SCHOOL ADJUSTMENT INVENTORY

SOCIAL ADJUSTMENT_____

WORK ADJUSTMENT_____

ACADEMIC ADJUSTMENT_____
Reading_____
Arithmetic_____
Language_____

PHYSICAL ADJUSTMENT_____

PEABODY PICTURE VOCABULARY TEST

Mental Age_____
I.Q._____
Raw Score_____
Percentile Rank_____